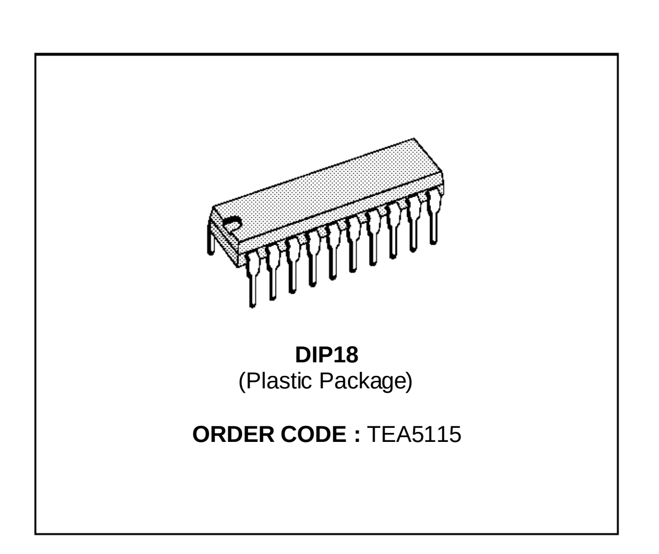


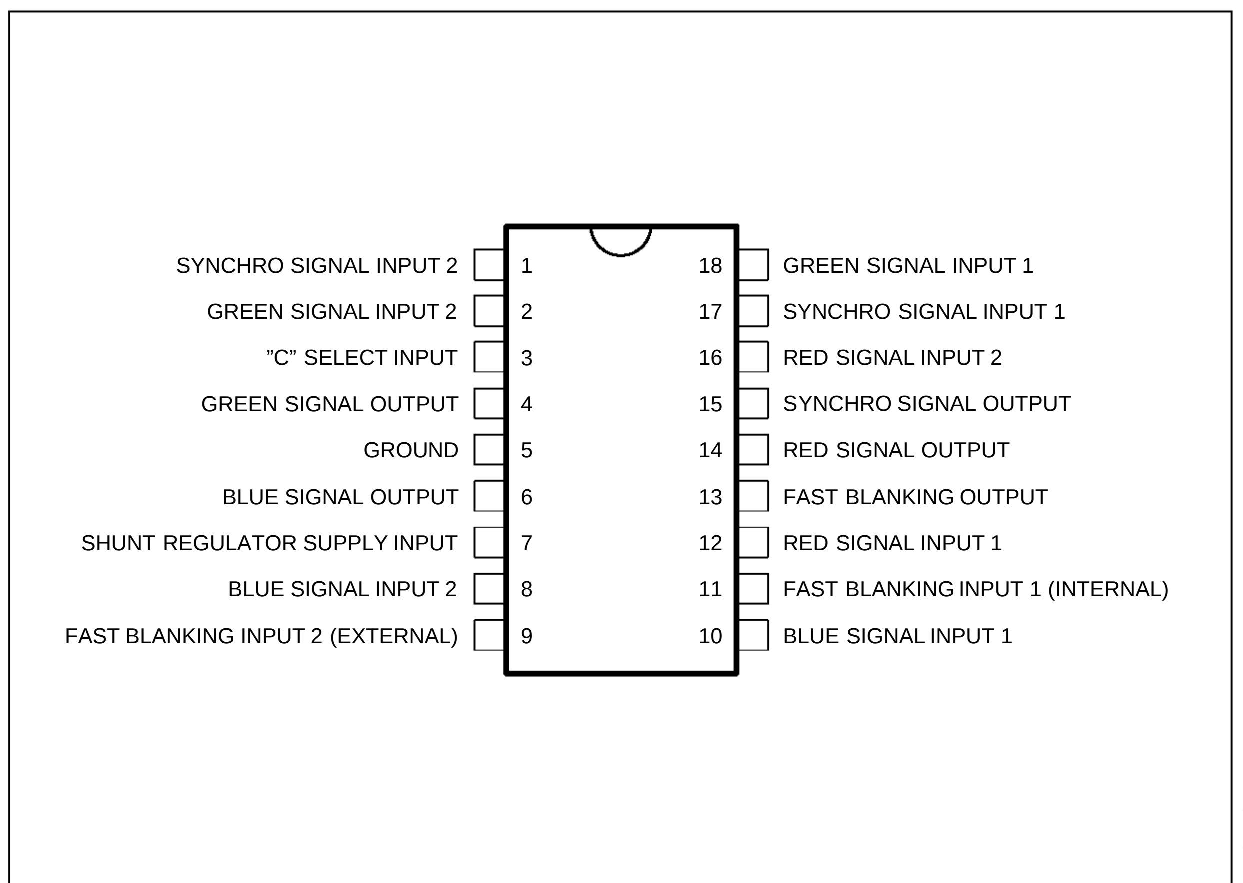
TEA5115

5 CHANNELS VIDEO SWITCH

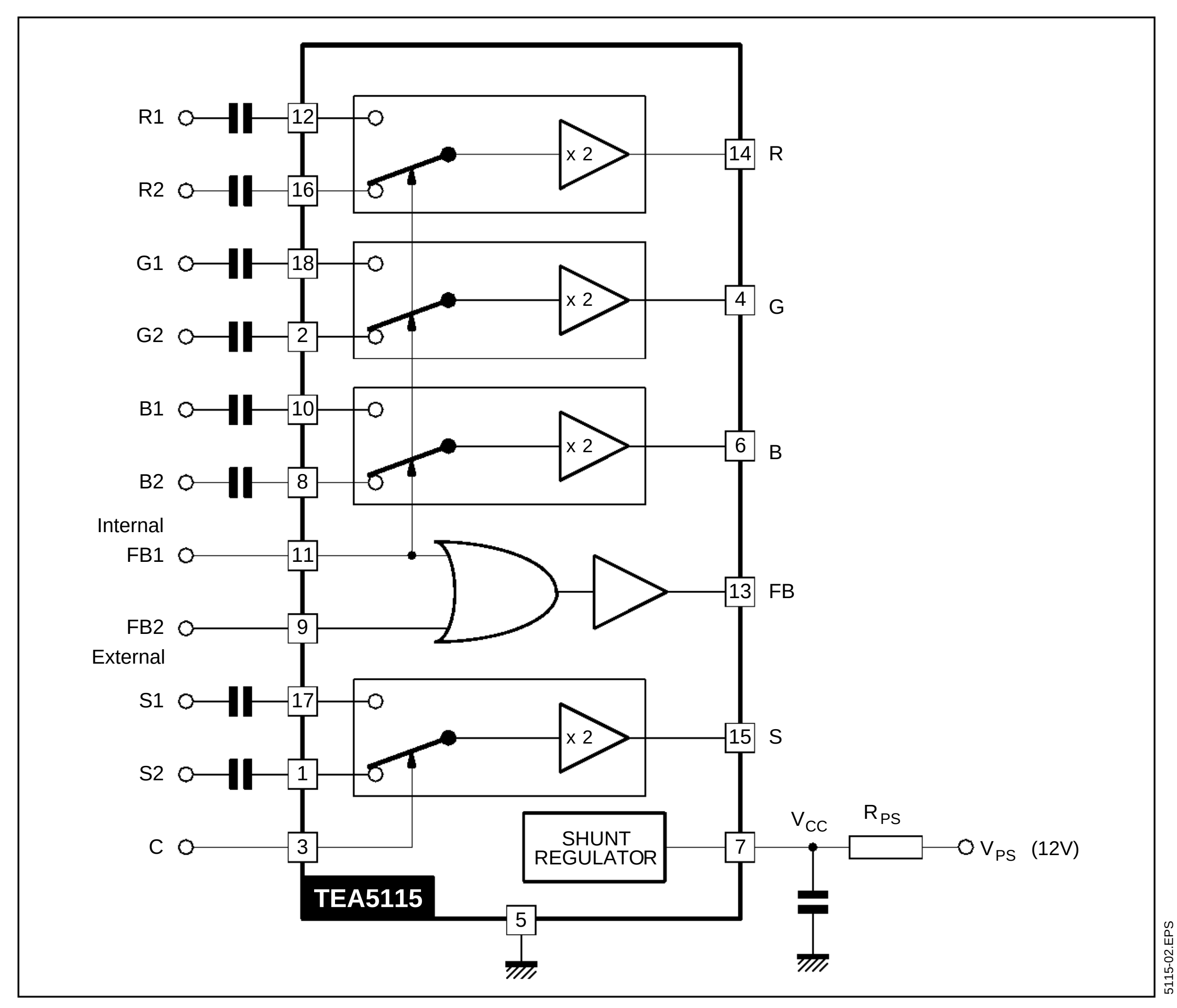
- EACH CHANNEL EXCEPT FAST BLANKING HAS 6dB GAIN
- R, G, B AND VIDEO SIGNALS ARE CLAMPED TO THE SAME REFERENCE VOLTAGE IN ORDER TO HAVE NO OUTPUT DIFFERENTIAL VOLTAGE WHEN SWITCHING
- ALL INPUT LEVELS COMPATIBLE WITH NFC 92250 AND EN 50049 NORMS
- 30MHz BAND WIDTH FOR R, G, B SIGNALS
- INTERNAL 6.7V SHUNT REGULATOR FOR :
  - LOW IMPEDANCE LOADS,
  - POWER DISSIPATION LIMITATION
- INDEPENDANT VIDEO OR SYNCHRONIZING SIGNAL SELECTION
- SIMULTANEOUS SWITCHING OF R, G, B AND FB SIGNALS BY FB1 INPUT (internal)



PIN CONNECTIONS



BLOCK DIAGRAM



5115-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
I_{CC}	Supply Current (see note)	150	mA
V_{in}	Input Voltage (all inputs)	– 0.5 to V_{CC} + 0.5	V
T_{oper}	Operating Temperature Range	0 to 70	°C
T_j	Junction Temperature	– 40 to + 150	°C
T_{stg}	Storage Temperature	– 40 to + 150	°C

5115-01.TBL

Note : Minimum output load is 300 Ω in case of all outputs loaded.

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction-ambient Thermal Resistance	70	°C/W

5115-02.TBL

ELECTRICAL CHARACTERISTICS

T_{amb} = + 25 °C, I_{CC} = 120 mA ; Load value = 150 Ω
(sequentially switched) (unless otherwise specified, refer to test circuit page 7)

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_{CC}	Internal Shunt Regulator	I_{CC} = 120 mA I_{CC} = 90 mA I_{CC} = 150 mA	6.3 6.2 6.2	6.7	7.2 7.3 7.3	V V V

R, G, B Switches (pins 4, 6, 14) (Time Measurement Conditions : Δ inputs RGB = 0.7 V_{pp} ;
FB input pulse amplitude = 2 V)

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_C	DC Output Voltage (no input voltage)	$T_{junction}$ = 25 °C $T_{junction}$ stabilized		0.9 1.2	1.25	V
V_{AC}	Max Output Swing Voltage		2	4.0		V_{pp}
B	Bandwidth (– 3 dB) (input voltage 0.7 V_{pp})		20	30		MHz
A_v	Gain of Each Channel (input voltage 0.7 V_{pp} ; f = 1MHz)		5.5	6	6.5	dB
A_{dc}	Gain Difference Between any two R, G, B Channels (input voltage 0.7 V_{pp} ; f = 1 MHz)			0.1	0.5	dB
	Input Swing			0.7 V ± 3dB		
z_{ic}	DC Input Impedance			10		kΩ
z_{oc}	Dynamic Output Impedance (input voltage 0.7 V_{pp} ; f = 1MHz) with R_{load} = 300 Ω			10		Ω
	Crosstalk between any inputs (R1 and R2 or B1 and B2 or G1 and G2) (input voltage 0.7 V_{pp} ; f = 1 MHz).		45	55		dB
	Crosstalk between any outputs (input voltage 0.7 V_{pp} ; f = 1 MHz).		40	55		dB
t_{dc}	Delay time between R, G, B inputs and RGB outputs.			10		ns
t_{sr1}	Switching rise time between FB1 input signal and R, G, B output signal.			60	110	ns
t_{sf1}	Switching fall time between FB1 input signal and R, G, B output signal.			10	40	ns
t_{sr2}	Switching rise time between FB2 input signal and R, G, B output signal.			10		ns
t_{sf2}	Switching fall time between FB2 input signal and R, G, B output signal.			10		ns
t_{d11} t_{d12}	R1, G1, B1 Decay Time			30 60		ns ns
t_{d21} t_{d22}	R2, G2, B2 Decay Time			45 40		ns ns

Fast Blanking Switch (pin 13)
(time measurement conditions : FB input pulse amplitude = 2 V)

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_{IL} V_{IH} V_{IH} V_{OL} V_{OH}	Low Level Input Voltage FB1 and FB2 High Level Input Voltage FB2 External High Level Input Voltage FB1 Internal Low Level Output Voltage High Level Output Voltage	 $T_{junction}$ = 25°C $T_{junction}$ stabilized	- 0.5 1 1.2 1.4 1.5	 1.7 1.9	0.45 V_{CC}+0.5 V_{CC}+0.5 0.6 3.5	V V V V V V
	Input Current (without load)			1.5		µA
	Dynamic Output Impedance : with R_{load} = 300 Ω			10		Ω
t_{FB1r}	Switching rise time between FB1 input and FB output.			120	160	ns
t_{FB1f}	Switching fall time between FB1 input and FB output.			25	60	ns
t_{FB2r}	Switching rise time between FB2 input and FB output.			70		ns
t_{FB2f}	Switching fall time between FB2 input and FB output.			35		ns
d_{tr}	Delay Between RGB Output Signal and FB Output Signal (rise time)			50	100	ns
d_{tf}	Delay Between RGB Output Signal and FB Output Signal (fall time)			20	40	ns

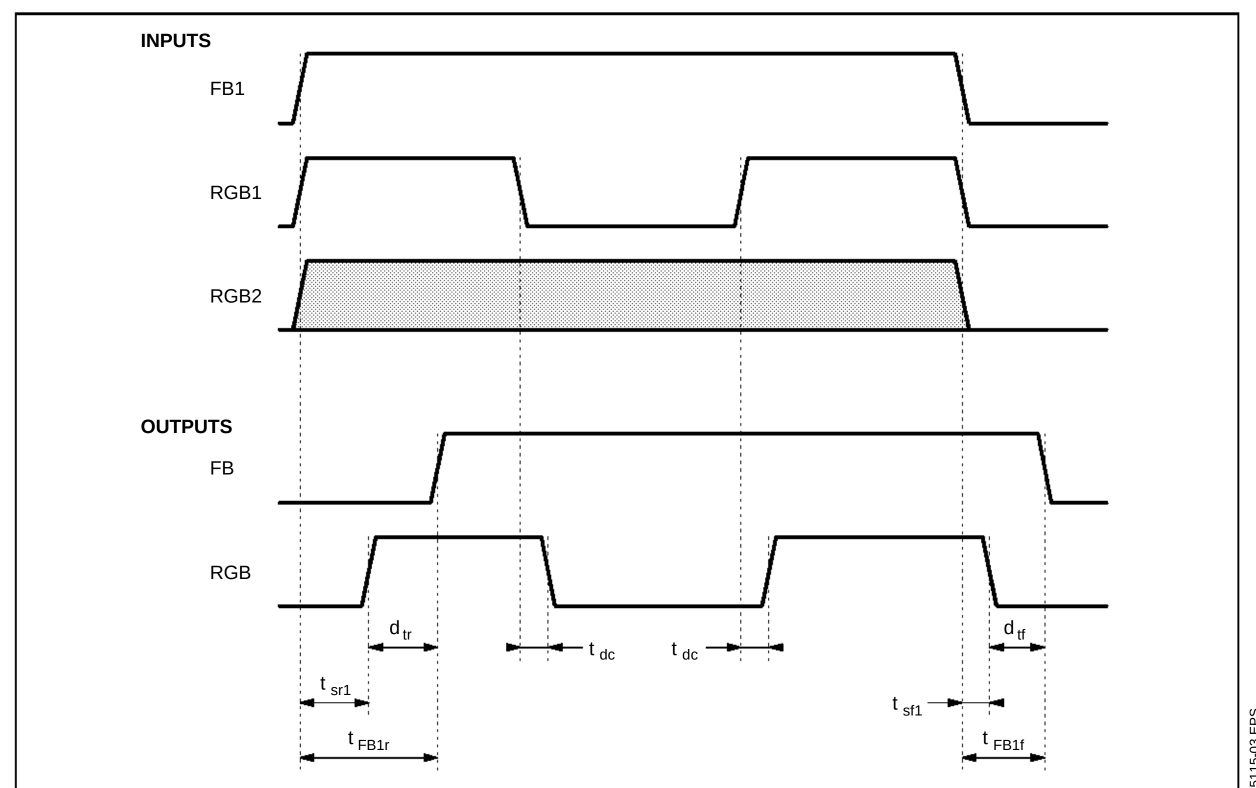
5115-03.TBL

ELECTRICAL CHARACTERISTICS (continued)
T_{amb} = + 25 °C, I_{CC} = 120 mA ; Load value = 150 Ω
(sequentially switched) (unless otherwise specified, refer to test circuit page 7)

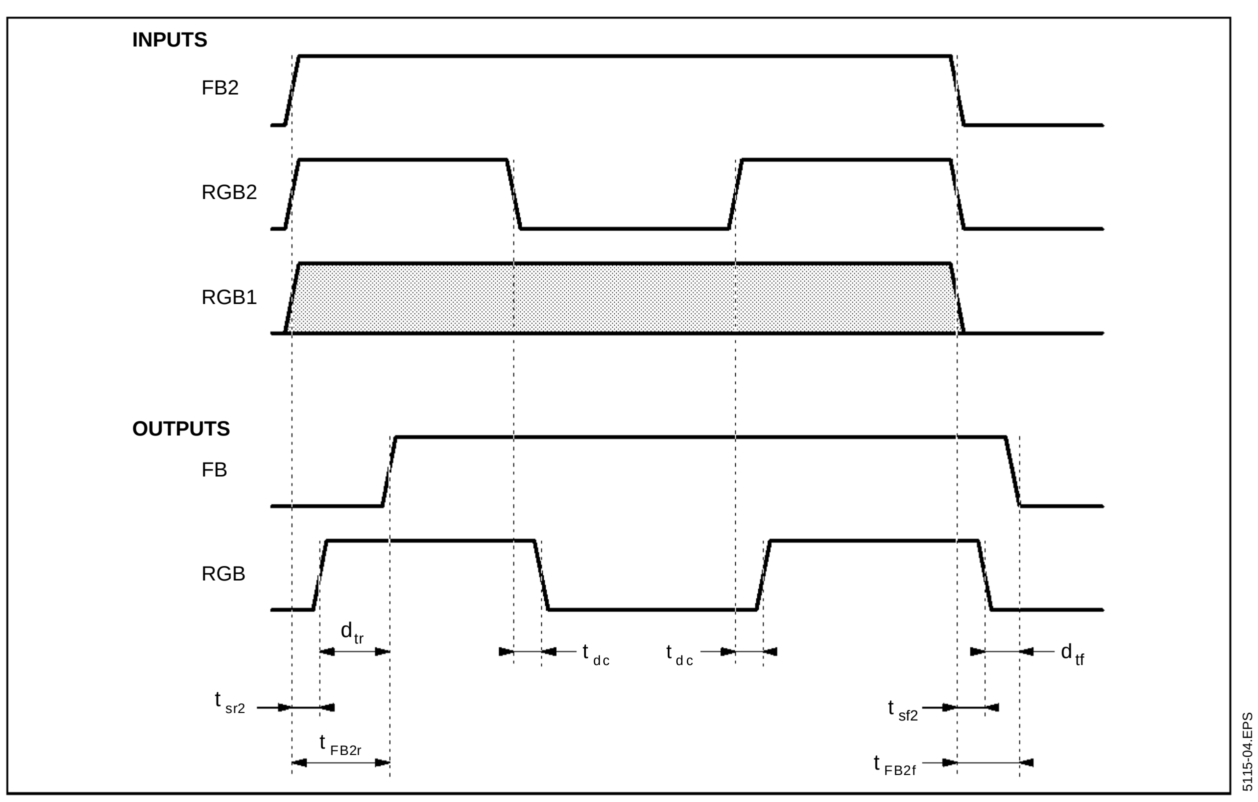
Symbol	Parameter	Min.	Typ.	Max.	Unit
Video (or synchro) **Signal Switch** (pin 15)					
V_S	DC Output Voltage (no input voltage) $T_{junction}$ = 25°C $T_{junction}$ stabilized Max Output Swing Voltage DC Input Impedance Dynamic Output Impedance (input voltage 1V_{pp} ; f = 1MHz) with R_{load} = 300 Ω Gain (input voltage 1 V_{pp} ; f = 1MHz) Bandwidth (– 3 dB) (input voltage 1 V_{pp})	 2.6 5.5 15	 0.9 1.2 10 10 6 20	 1.25 6.5	 V V V_{pp} kΩ Ω dB MHz
	Input Swing		1V ± 3 dB		
t_{cr}	Switching rise time between C input signal and S output signal (C pulse amplitude 3 V).		30		ns
t_{cf}	Switching fall time between C input signal and S output signal (C pulse amplitude 3 V).		10		ns
t_{dc}	Delay Time Between S Input and S Output (Δ input 0.7 V_{pp})		10		ns
Select Input "C" (pin 3)					
V_{IL}	Low Level Input Voltage	– 0.5		1	V
V_{IH}	High Level Input Voltage	2		V_{CC}+0.5	V
I_{IL}	Low Level Input Current (V_{IL} = 1 V)	– 0.6		– 0.1	mA
I_{IH}	High Level Input Current (V_{IH} = 3 V)			0.5	mA

5115-04.TBL

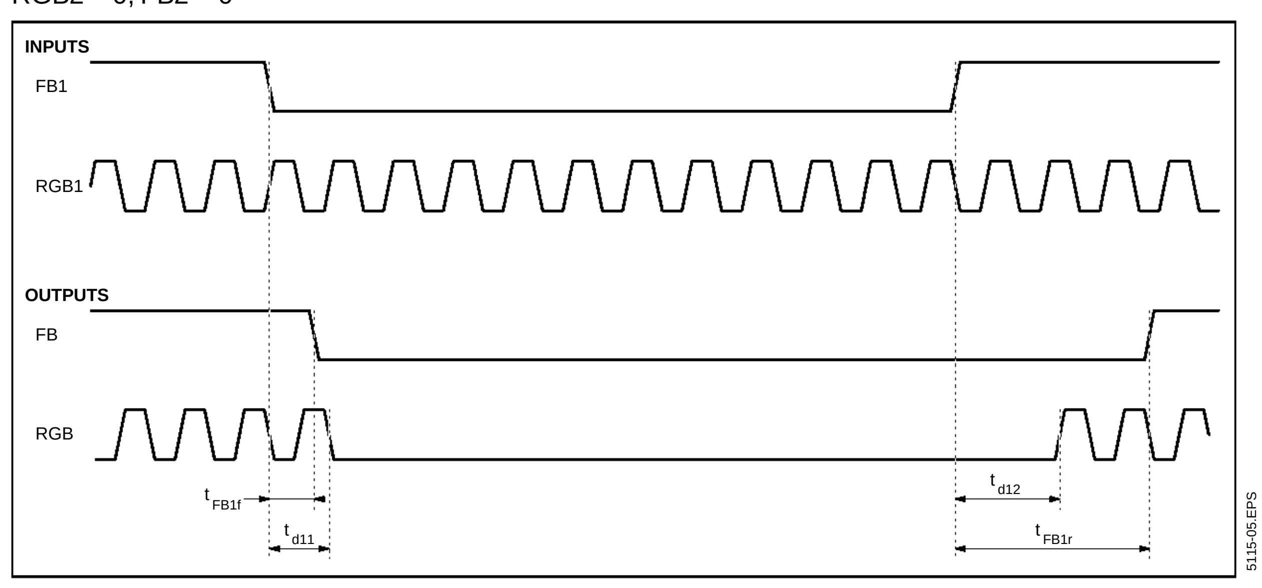
FB2 = 0



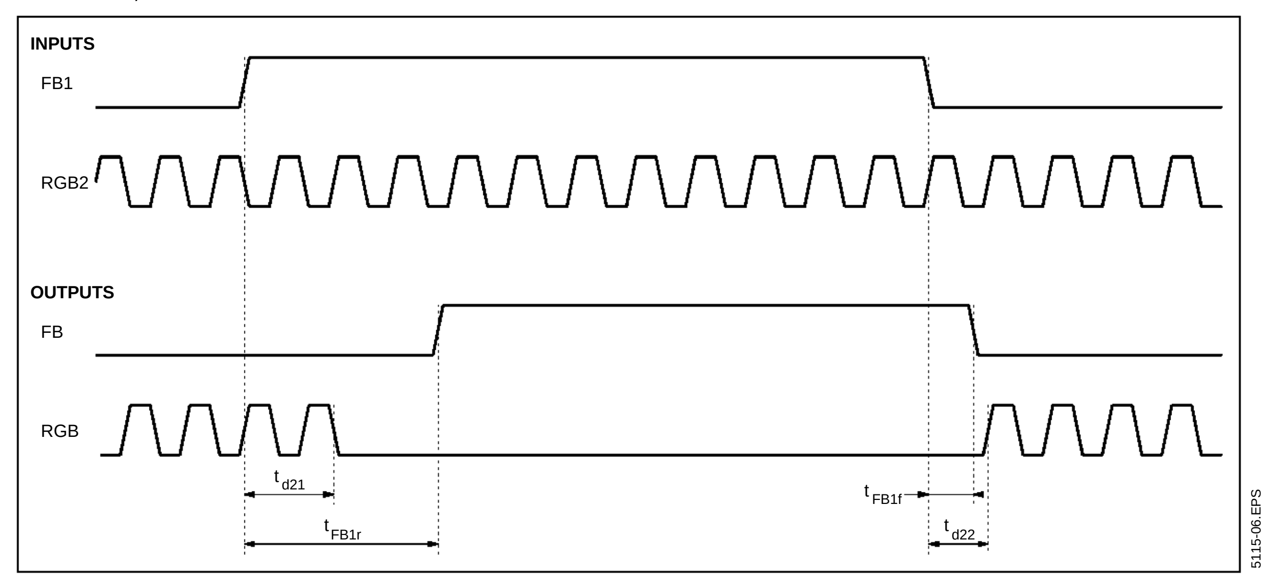
FB1 = 0

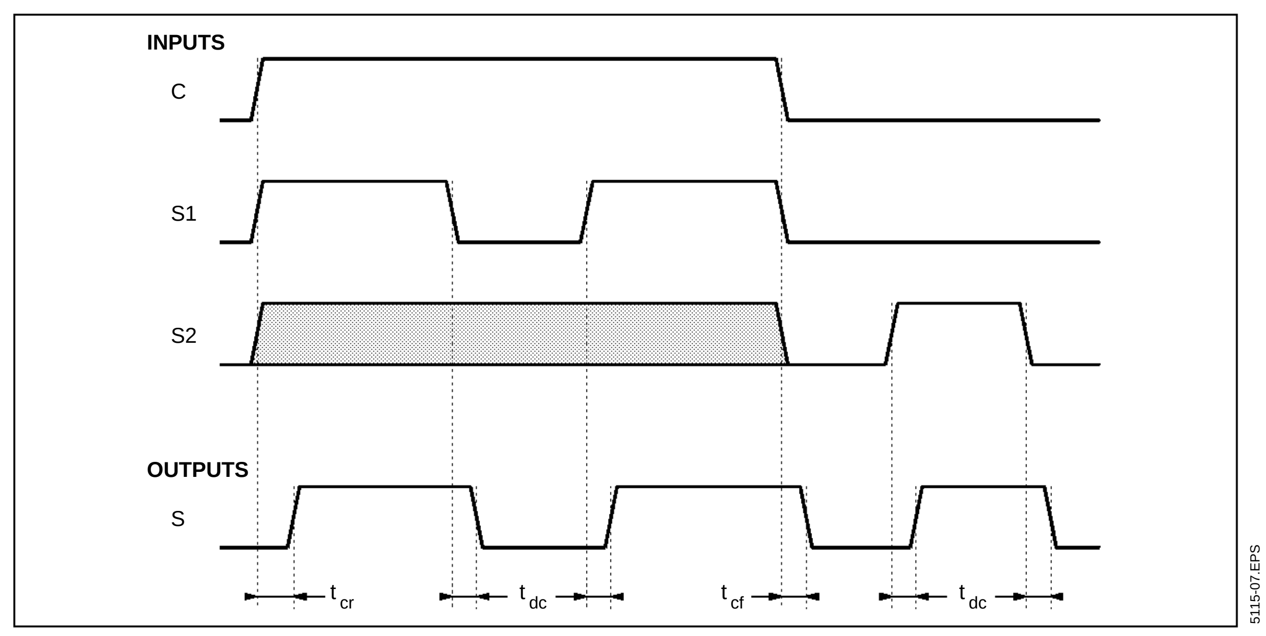


RGB2 = 0, FB2 = 0

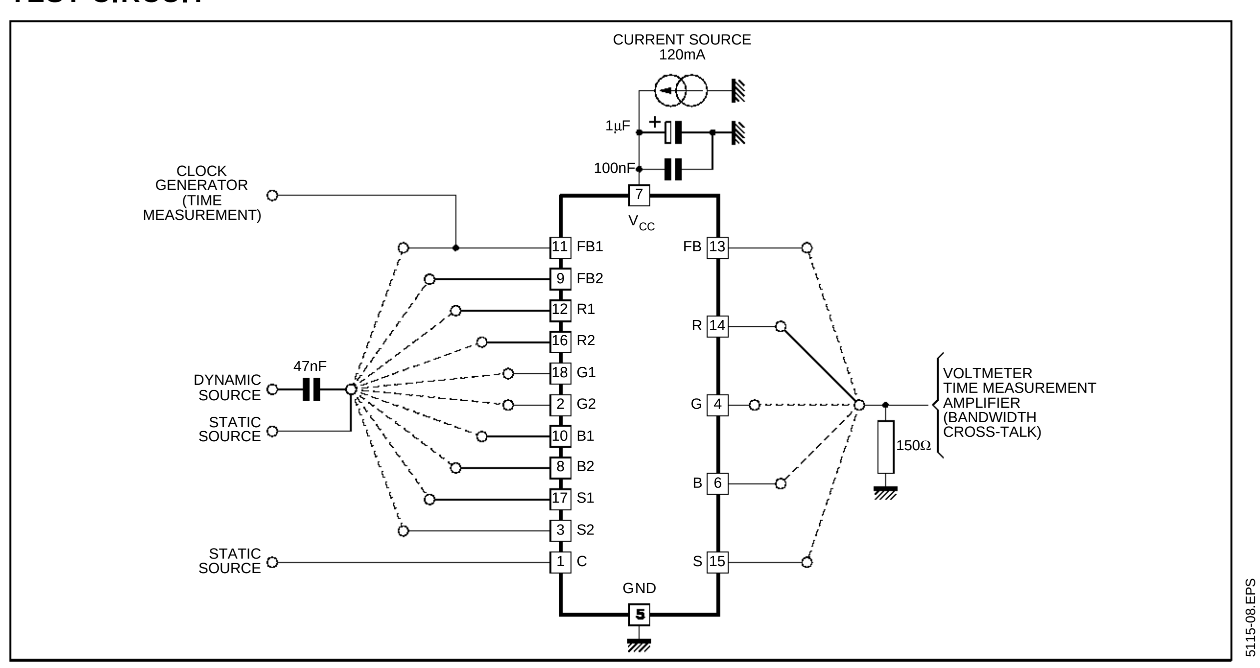


RGB1 = 0, FB2 = 0


INPUTS
FB1
RGB2
OUTPUTS
FB
RGB
t d21
t FB1r
t FB1f
t d22
5115-06.EPS

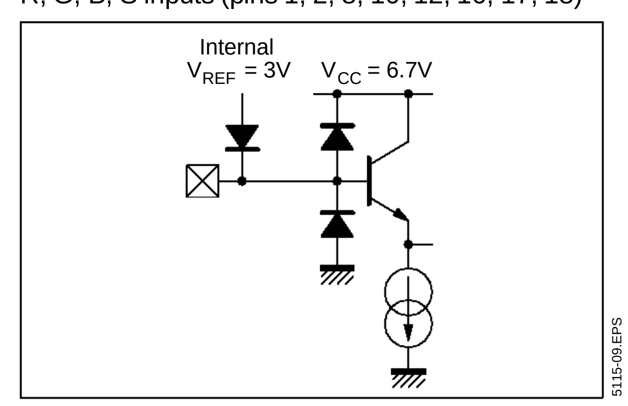

INPUTS
C
S1
S2
OUTPUTS
S
t cr
t dc
t cf
t dc
5115-07.EPS

TEST CIRCUIT

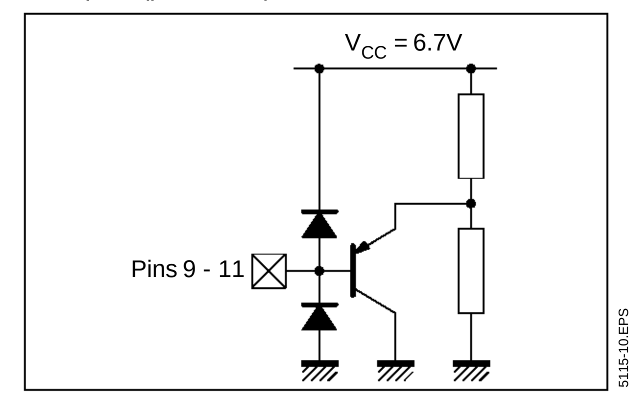


INPUTS/OUTPUTS EQUIVALENT INTERNAL DIAGRAMS

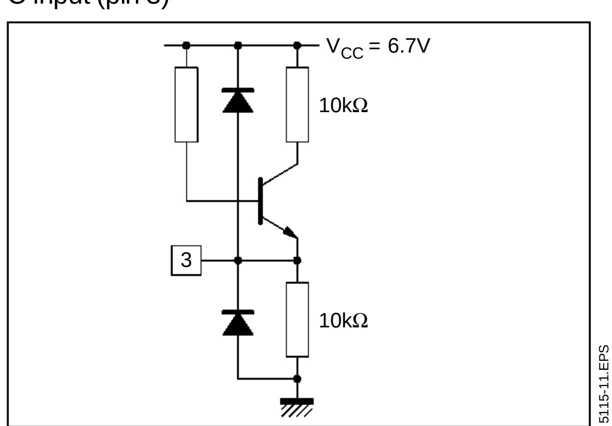
R, G, B, S inputs (pins 1, 2, 8, 10, 12, 16, 17, 18)



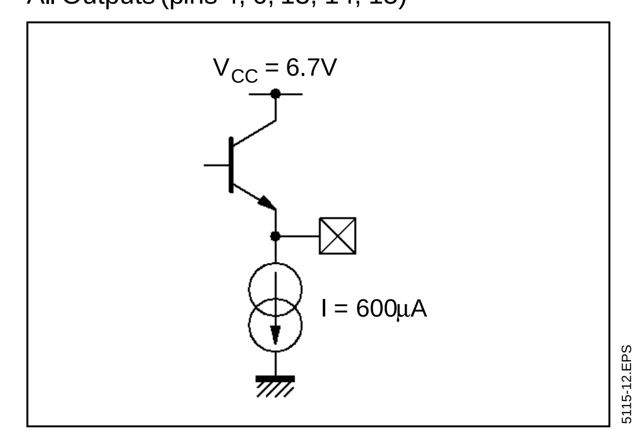
FB inputs (pins 9, 11)



C input (pin 3)

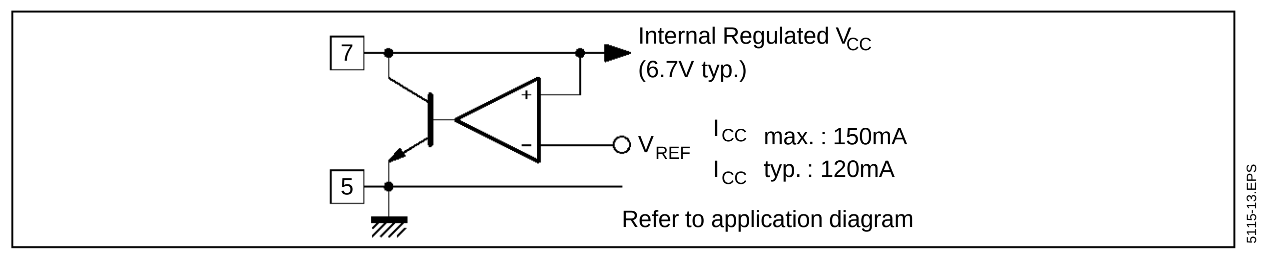


All Outputs (pins 4, 6, 13, 14, 15)

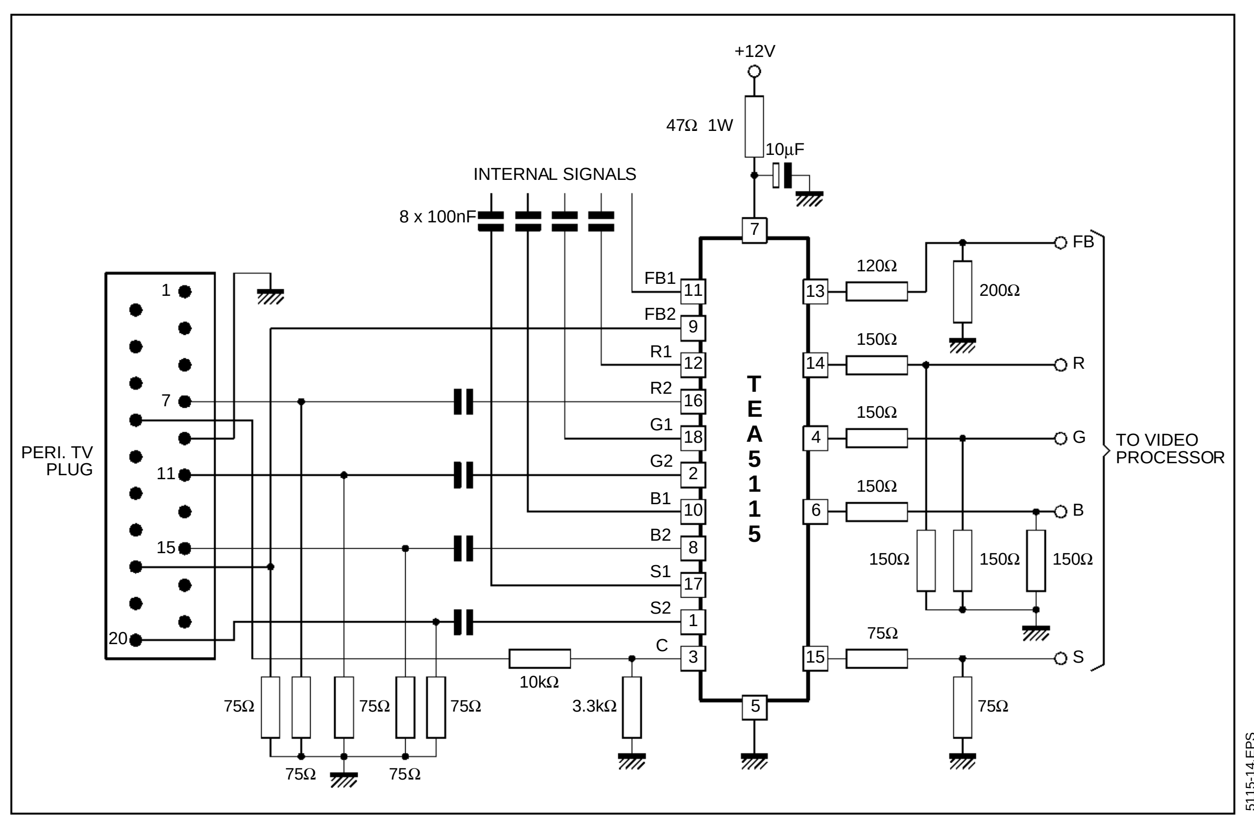


INPUTS/OUTPUTS EQUIVALENT INTERNAL DIAGRAMS (continued)

I_{CC} Supply (shunt transistor regulation system) (Pin 7)

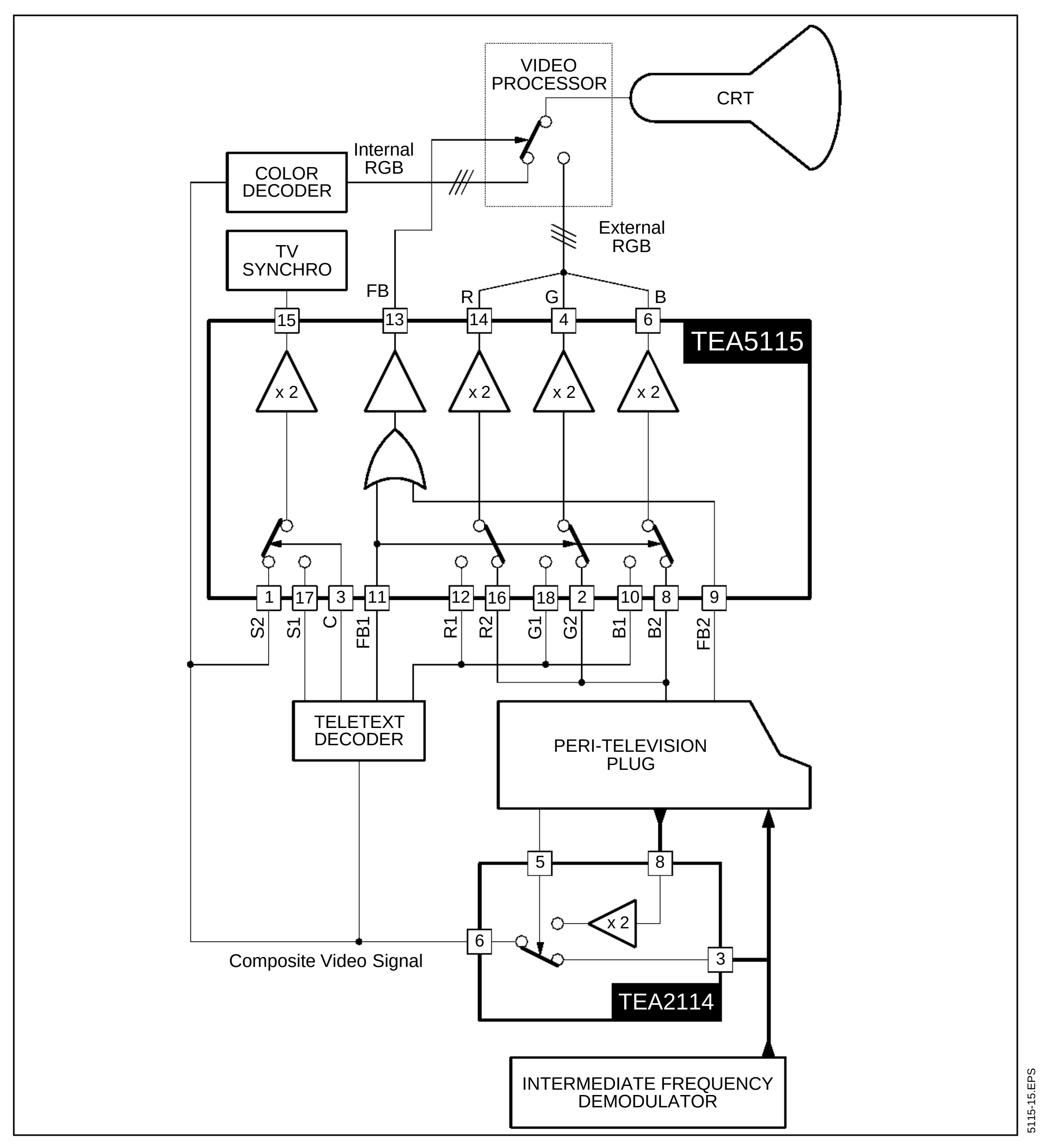


TYPICAL APPLICATION DIAGRAM

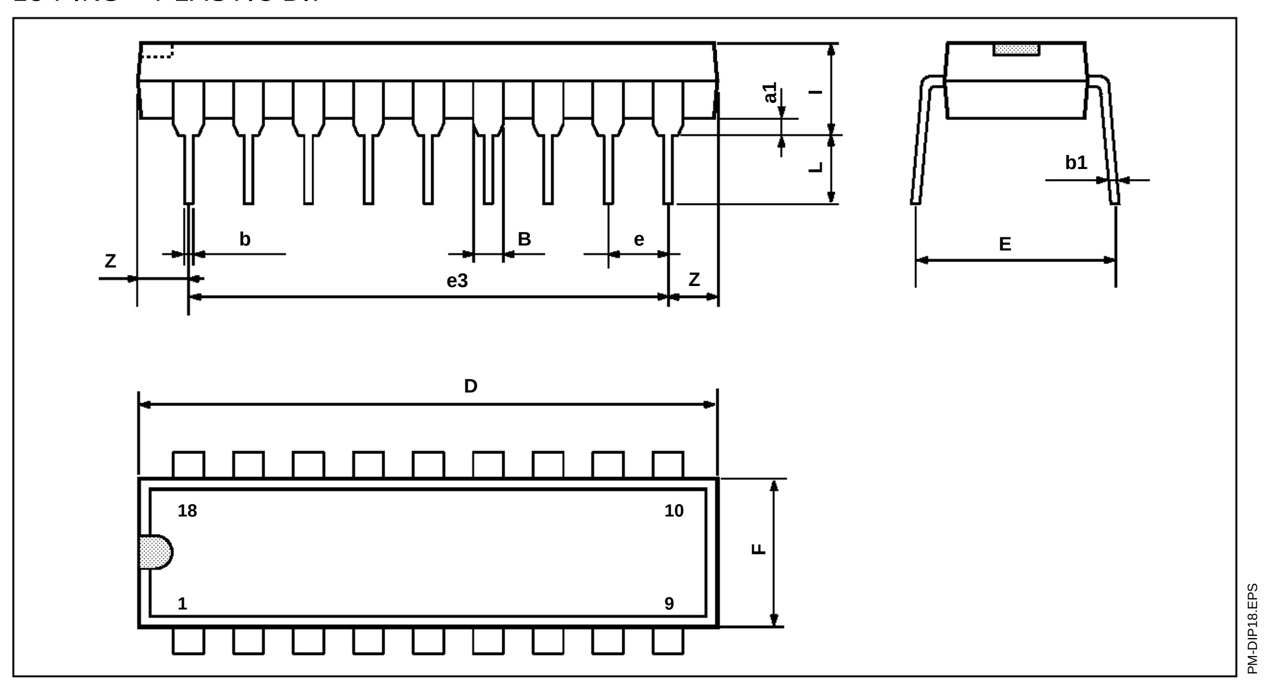


- Above given output load values are minimum values, in case of all output loading.
- Minimum output load is 150 Ω individually, provided that total supply current is less than 150 mA.

TELETEXT SWITCHING APPLICATION WITH TEA5115 AND TEA2114



PACKAGE MECHANICAL DATA
18 PINS – PLASTIC DIP



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.064
b		0.46			0.018	
b1		0.25			0.010	
D			23.24			0.914
E		8.5			0.335	
e		2.54			0.100	
e3		20.32			0.800	
F			7.1			0.280
i			3.93			0.155
L		3.3			0.130	
Z		1.27	1.59		0.050	0.062

DIP18.TBL

SGS-THOMSON MICROELECTRONICS